

Assessing Fire Risk in the Wildland-Urban Interface.

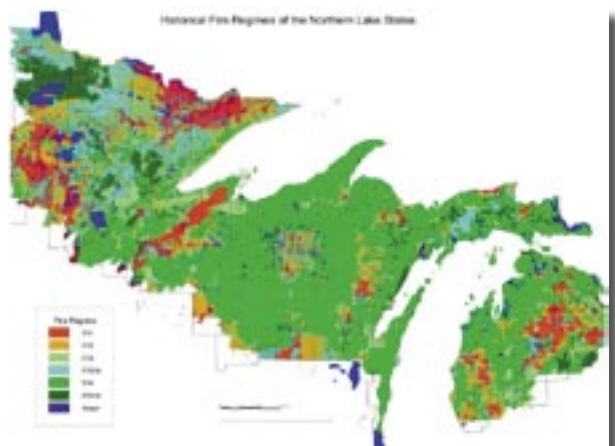
by **Dave Cleland**, Ph.D.
Research Landscape Ecologist

Dave Cleland and his research team have been assembling and analyzing data necessary for assessing fire risk and fire regime condition class (FRCC) across the Lake States, and are now extending this effort to National Forests in Ohio, Indiana, Illinois, and Missouri. Dave is a Research Ecologist with the unit (SRS-4104) and a Landscape Ecologist with the Eastern Regional Office (R-9) of the National Forest System. The research component of this project was funded by Joint Fire Science Program and National Fire Plan awards, and administrative studies funded for NFS land by R-9 Fire and Aviation.

The team has delivered maps and database products of attributes across 60 million acres to National Forests and State Departments of Natural Resources. The products include maps of fire risk, historical fire regimes, landscape ecosystems (LTAs) mapped by interagency teams, and biophysical units (ELTs). The team uses these mapped LTA and ELT units in spatial analysis at multiple scales of departures from reference conditions of vegetation communities and disturbance regimes to determine fire regime condition class. Historical forest conditions, based on observations made in the 1825-1870 General Land Office Survey, were used as baselines in FRCC calculations, and to develop desired future conditions at the landscape-level and stand-level. This allows the design of fuel treatment projects that will effectively reduce fire risk and lower FRCC.

Maps are also being used in assessing fire risk, an effort complementing FRCC mapping. Fire risk is assessed by integrating maps of current vegetation (classified by state resource agencies and the US Geological Survey from LANDSAT TM imagery) with information on ignition probabilities, anticipated fire behavior, and maps of biophysical units. The biophysical unit is useful for characterizing lesser fuels affecting modern surface fire regimes, and as a predictive variable in numerical models of modern forest fire occurrence.

Maps of upland and lowland conifer landscape structure have also been produced. These maps are used to estimate: (a) crown-fire potential with no fire spotting; (b) fire spotting and rolling vortices within 1/4 mile; and (c) fire spotting of 1 mile. The team has combined maps of the wildland-urban interface, developed for national application by Volker Radeloff and Roger Hammer at the University of Wisconsin-Madison, with fire risk maps to assist managers in systematically setting fuel treatment priorities and in implementing the Healthy Forest Restoration Act. The WUI map was developed within National Forest System lands using housing density data that includes small groups of homes with infrastructure, including summer recreational homes, which would not be captured in census data of population density. Cleland would like to extend this work to the Southern Region, in cooperation with staff from SRS-4104 and other research work units.



The Encyclopedia of Southern Fire Science (ESFS)

by **Ken Outcalt**, M.S.
Research Ecologist

Although much information is available on fire and forest management, often it is not readily available or in an accessible format. The Encyclopedia of Southern Fire Science (ESFS) seeks to overcome these problems by organizing and synthesizing the wildland fire science literature and translating it into an Internet-based encyclopedia. The aim of the ESFS is to organize and remove redundancy from existing sources of fire-related information and present this knowledge in a user-friendly format. Currently, ESFS has over 550 pages of peer-reviewed text, tables, and figures on the following topics: fuels of southern wildland; fire weather; fire behavior; fire effects on water, soil, plants, and animals; fire ecology and management of 20 fire-adapted southeastern communities; human health impacts of fire; history of people and fire in the South; fire in the wildland-urban interface; fire effects on cultural resources; fire education programs; and uses and methods of prescribed burning. These topics are available to the public in a fully linked and searchable encyclopedia hypertext system via the Internet making access to this information universal, convenient, and free (<http://www.forestryencyclopedia.net/>).

Using ESFS busy forest managers can more easily find answers to problems from their own desks. ESFS provides easy-to-find answers to management questions such as:

- What season and fire intensity is best to restore longleaf pine?
- How can I minimize the effects of a burn on soil and water quality?
- What common landscape plants are the most flammable in Florida?
- What fire education programs are available to residents of South Carolina?
- How does fire affect pollinators?
- How can prescribed fire be used to restore Florida scrub or dry prairies?
- How can I reduce fuel loads if I live near an urban area?
- What are some common methods of measuring burn severity?

In addition to the primary beneficiaries of ESFS (land and fire managers), ESFS will serve the information needs of landowners, policy makers, the media, educators, students, researchers, technology transfer agents, fire workers, and homeowners. Ready access to the right information in the right form using the encyclopedia will help members of all these groups to make more informed decisions by deepening their understanding of the environmental, social, economic, and political implications of fire, fuels, and recovery strategies. Under the direction of Editors Deborah Kennard and Cynthia Fowler, the ESFS is a cooperative effort between SRS-4104, the Southern Research Station, and more than 10 research institutions and land management agencies across the South. Over 35 authors have contributed literature syntheses to the effort and over 40 experts have provided peer-review of these submitted syntheses.

